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(5) of subjecting something to a stealthy process, or (6) of worming out some ones secrets, or (7) of freeing something from worms, or (8) of removing the charge from a gun, or (9) of removing the beard of any oyster or mussel, or (10) of giving something a spiral form, or (11) of winding rope-yarns, etc.?

Some other word seems necessary. One cannot use the term "larvate," for that is already in use, as a past participle in speaking of certain peculiarities of diseases that physicians meet with, and as an active verb in expressing the idea of masking.

The term "delarvate," the etymology of which is evident, is not to be found in the dictionaries and is here proposed as an English equivalent of the French échenillage. In his notes and manuscripts the author has used it constantly to avoid paraphrasing, and has gained time in so doing. Is the word not of sufficient value for general use?
—F. C. KENYON.

ENTOMOLOGY.[1]

Dr. Smith's Study of the San Jose Scale.—At the 1896 session of the New Jersey Legislature, $1000 was appropriated to the State Experiment Station for the study of habits and enemies of the San José scale (*Aspidiotus perniciosus*) with a special view to the useful introduction of the latter into New Jersey. Dr. J. B. Smith was commissioned to make the investigations. In the Station report for 1896 Dr. Smith gives a full account of his studies and an admirable discussion of the subject. He visited California in May and found a great division of opinion regarding the usefulness of ladybird beetles as destroyers of this scale. But he found that "there is absolutely no disagreement concerning the beneficial effects of the *Vedalia cardinalis* (Fig. 1) as against the Cottony Cushion scale *Icerya purchasi.* There is no doubt that this insect, once so destructive, has been almost completely exterminated by the *Vedalia.* We do find that occasionally the scale reappears; but a colony of the beetles sent from the office of the local commissioner usually clears them out in a few weeks there-after." But this is an exceptional and extraordinary case. The conditions regarding the San José species are different; there is little hope of a similar extermination by Coccinellids, and Professor Smith summarizes his results in these lines: "We have no good basis for believing that any of the insects introduced into New Jersey from California, or which can be introduced from that State, will become sufficiently abundant in a measurably short time to be of use in keeping the pernicious scale in check. The two species which have done the most effective work in California are already natives of New Jersey and require no introduction. Climatic differences make them less effective with us than they are on the Pacific Coast. We can probably count that both the *Aphelinus* and the *Chilocorus* will in time become increasingly abundant. Our most active species is *Similia* (*Pentilia*) *misella*, which thus far offers the best chance of an effective enemy. We cannot hope, however, that it will increase sufficiently to become an important aid for a considerable number of years to come, and it does not seem as if our fruit-growers could afford to wait for this or the other species to increase without taking active measures for the destruction of the scale.'

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[1] Edited by Clarence M. Weed, New Hampshire College, Durham, N. H.

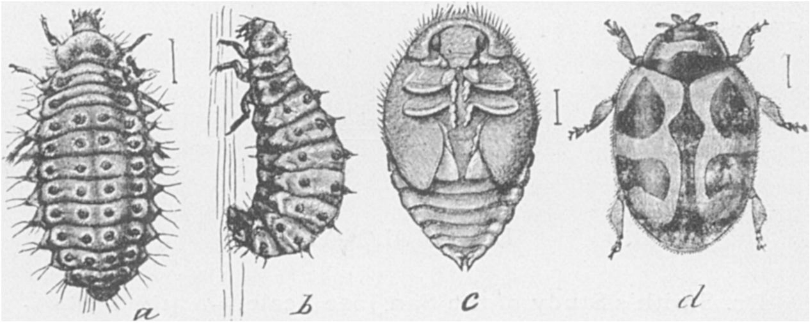

Fig. 1. The Vedalia Lady Beetle. *a*, larva, back view; *b*, larva, side view; *c*, pupa; *d*, beetle. Magnified. (From Insect Life).

CLARENCE M. WEED.

The Spruce Gall-louse.—Professor Chas. H. Fernald has published an excellent account of the Spruce Gall-louse, *Chermes abietis* Linn. The insect forms twig-galls on spruce, each gall containing from three to thirty or more cavities, each cavity inhabited by from ten to thirty small yellow lice. About midsummer the galls dry, and the young gall-lice crawl upon the leaves where they moult and become winged. These so far as observed are all parthenogenetic females which lay eggs and die, the dead bodies protecting the eggs. Two weeks later the eggs hatch into young, which crawl upon leaves and buds. Some of those on the buds survive until the following May to lay eggs for the summer brood which develop in the galls. No males were found during the two years study. Concerning the formation of the galls the author writes: "That this insect by its own operations is able to cause a young twig to develop into such an abnormal form is very interesting. Physiological botany teaches that all such growths as galls caused by insects, and callouses which grow over wounds inflicted on trees, are the result of what is known as stimulation. The stimulation or irritation in this case is the puncture of the setæ of the hibernating female into the bud, as previously described. Botanists agree that stimulation of this nature sets up a division of the plant cells. Each cell divides in the middle, producing two, which after reaching full size divide as did the parent cell, thus producing four. As this goes on, a swelling is naturally produced, and this swelling is the gall. It is not necessary that the insect should sting or poison the plant; the piercing of the setæ is sufficient cause for the formation of the gall. Essentially the same thing occurs when a limb of a tree is sawed off. The inner bark, the growing part of the tree, is injured or stimulated, and the cell division begins, causing a swelling or callous, which gradually grows over the end of the limb. Why the gall should take on its characteristic form and color has not been explained.

"As a result of the stimulation, there may be in addition to the cell divisions a deposition of material in the cells, as starch, proteids, resin, etc., which appear as minute granules of definite character. The plant cells of the gall produced by the insect are abnormally large, with thin walls, and contain more starch than those of the unaffected parts of the same stem. It may be that this starch is the food on which the young lice subsist."—C. M. W.

Hemiptera.—Mr. Elmer D. Ball finds[2] that all the forms of the genus Clastoptera hitherto described from North America with the possible exception of *C. brevis* (Walk.), may be referred to four species, viz., *C. delicata* Uhl., *C. proteus* Fitch, *C. xanthocephala* Germ., and *C. obtusa* Say. The species are well figured and described.

Willis Grant Johnson, A. M., has described[3] and figured five new species of scale insects belonging to the genera *Aspidiotus* and *Chionaspis*, with notes on their habits and parasites.

Dr. Philip R. Uhler has published[4] a summary of the collection of

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[2] Proc. of the Iowa Acad. of Nat. Sci., 1895, III, 182–194.

[3] Bull. Ill. State Lab. of Nat. History, IV, 380–395.

[4] Proc. U. S. Nat. Museum, XIX, 255–297.

Hemiptera of Japan exhibited at the Chicago Exposition and afterward presented to the U. S. National Museum by Dr. K. Mitzukuri of the Imperial University of Tokio. Numerous new species are described.

In a lecture before the *Société Zoologique de France* M. Charles Janet quoted with approval Busgen's views regarding the cornicles of Aphides. Büsgen believes that the cornicles are especially useful to the plant lice which do not excrete a sweet liquid, and which on this account are not protected from enemies by ants. The Aphides defend themselves against Ichneumon flies, Coccinellid larvæ, and Aphis lions (Chrysopa larvæ) by means of the cornicles which are movable and produce a secretion of a waxy nature which is smeared upon the head and antennæ of enemies.

Professor J. M. Stedman has discussed[5] at length the wooly aphis of the apple (*Schizoneura lanigera*). The subterranean form is said to do great damage to the apple in Missouri and is best kept in check by the application of tobocco dust around the base of the tree at a cost of but two cents per tree per year. In extreme cases the insects may be killed by the use of carbon bisulphide, but this method is not recommended, as a little carelessness may prove fatal to the tree, and it is also necessary to treat the trees with tobacco dust in order to keep the insects away.—W. F. Fiske.

Coleoptera.—Dr. John Hamilton records[6] observations on the habits of the blind beetle, *Pinadytes hamiltoni* Horn, from which "it is evident that the species is gregarious and carnivorous, apparently occurring oftener in the winter than in summer, and in woody, hilly, uncultivated places. Conjecturally, from its pallid color, absence of eyes, and conditions under which found, it seems in habit either subterranean or semi-subterranean, its presence under bark being that of a scavenger. The larvæ are probably wholly subterranean, subsisting on the dead larvæ and pupæ of the numerous insects which live beneath the ground during immaturity, and when discovered will probably prove to be eyeless."

Wm. G. Dietz, M. D., has monographed[7] the North American species of the tribe Ceutorhynchini of the family Curculionidæ. All the species are described and part of them figured. Many species and a few genera are new.

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[5] Bull. Missouri Agric. Exp. Sta. No. 35.

[6] Ent. News, VIII, 34.

[7] Transactions American Ent. Soc., Oct,-Dec., 1896.

Mr. A. L. Quaintance has made interesting notes[8] concerning the life history of *Brachytarsus alternatus*. He finds that instead of feeding on scale insects as had previously been supposed, the adults and larva feed on corn, beans and cow-peas.

Mr. C. W. Piper records[9] some interesting notes on the sembling habits of a certain ladybird (*Coccinella transverso-guttata*) in Washington. He finds that they are in the habit of collecting in large numbers on the summits of mountains with no apparent object. In one case this was so noticeable as to give the name ladybird mountain to a certain peak.

Dr. John Hamilton is unable to follow Captain Casey " in splitting Anthicus into ten genera with meaningless barbaric names; these so-called genera are simply groups convenient for the purpose of analysis and nearly all previously recognized by various authors. In a catalogue these groups may properly be noted by XXX, or, as in the European, designated by numerals."[10] Most entomologists will agree with Dr. Hamilton in his criticism; unnecessary divisions into genera are not to be encouraged.—C. M. W.

Diptera.—Mr. E. Porter Felt has contributed[11] to the knowledge of the structure of the antennæ of certain male diplosids. He confirms the observations of Kieffer[12] concerning certain novel structures which he describes as follows: " The arched filaments differ widely from ordinary setæ, though they occur in whorls in the same manner. They arise from pits in the chitine in much the same way as do the setæ, but, instead of remaining single and tapering to a point, they divide at their base into two equal branches which diverge to the middle of their length, where they recurve sharply as a rule and turn to unite with the base of the adjoining filaments in the whorl. Thus by means of the anastomosises these arched filaments, which from their designation one would expect to be free from each other, are in reality continuous, and form a looped thread around the segment with anchoring branches at regular intervals."

In a later article,[13] M. Janet has figured in detail the peculiar insertion of the arched filaments and presented a theory of their development. He suggests " that they may have arisen as hypodermic lamellæ, and that the edges may have become thickened and chitinized while the inner membranous portion gradually shrank from the outlining edges and disappeared. He holds the opinion that the chitinization of the thickened edges and the shrinking of the membrane at the apical portions of the lamellæ would in all probability begin before they had attained their full growth."

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[8] Ent. News, VIII, 1, 2.

[9] Ent. News, VIII, 49–51.

[10] Ent. News, VIII, 35.

[11] Psyche, VIII, 3–5.

[12] Bull. Seances, Soc. Ent. Fr., 1895, p. CXCII.

[13] Bull. Seances, Soc. Ent. Fr., 1896, pp. 37, 183–185.

Claude Morley, F. E. S., has described and figured[14] certain peculiar dipterous larvæ (*Metriocnemus fuscipes* Mg.) inhabiting rotten stumps. The figures and descriptions apply well to certain American species inhabiting similar localities.—W. F. F.

General Notes.—Under the title of Biological Notes on Certain Iowa Insects,[15] Messrs. H. Osborn and C. W. Mally describe the preliminary stages of the ground cherry seed moth (*Gelechia sp.*) with notes on a parasite, the early stages of the imbricated snout beetle (*Epicœrus imbricatus* Say); and give notes on the Cosmos weevil (*Baris confinis* Lec.), and on the early stages of a dipterous insect (*Chironomus sp.*) occurring in large numbers in water tanks and reservoirs.

The insects affecting the cotton plant have recently been discussed[16] by Dr. L. O. Howard. Especial mention is made of the cotton worm (*Aletia argillacea*) and several of its parasites; the boll worm (*Heliothis armiger*) and the cotton boll weevil (*Anthonomus grandis* Boh.), which are described and figured in all stages. Many other species are mentioned.

M. Charles Janet records[17] some interesting studies which show that the mite *Discopoma comata* is a true external parasite of the ant *Ladius mixtus*, attaching itself firmly to the body of the host and sucking the blood.

Mr. Wm. H. Ashmead has described[18] over forty new species of Cynipidous galls and gall wasps in the National Museum. One new genus is also described.

Miss Alice M. Beach catalogues[19] the Thrips of Iowa and describes five new species of Thrips proper, and one species doubtfully referred to Sericothrips. Professor Herbert Osborn in an accompanying paper describes a new species of Phlæothrips.

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[14] Entomologists Monthly Mag., VIII, 49, 50.

[15] Proc. Iowa Acad. Nat. Sci., 1895, Vol. III, 203–213.

[16] U. S Dept. of Agric., Bull. 33, Office of Experiment Station.

[17] Comptes Rendus, 1897, p. 102.

[18] Proc. U. S. Nat. Mus., XIX, 113–136.

[19] Proc. Iowa Acad. Nat. Sci., III, 214–227.

Mr. Samuel H. Scudder has prepared[20] a table for the determination of the genera of North American Melanopli, and gives notes on the distribution of species.

Part V of the Bibliography of American Entomology prepared by the U. S. Division of Entomology has recently been issued. It contains 1679 entries. We are glad to note that Dr. Howard expresses his intention to bring the work down to date, and to continue it hereafter. It is extremely serviceable to all working entomologists.

At a meeting of the Birmingham Entomological Society[21] Mr. W. Wilkinson exhibited a collection of insects made in the Madeira and Canary Islands in February, March and April, 1896. Among the most interesting species were *Pararge xiphia* from Madeira and *P. xiphiodes* from Grand Canary, two closely allied but distinct species peculiar to the Madeiras and Canaries respectively. Mr. Kenricks said that the most curious feature in the Canary Island fauna was the occurrence of American forms. *Vanessa huntera* occurs only in the Canaries and America, and *Anosia plexippus* (=*Danais archippus*) which is common in the Canaries is also an American species. Mr. Bethune Baker said that in working on the moths he noticed American affinities in several groups, especially in the genus Phlogophora, which was much more closely allied to American than to European forms.

PSYCHOLOGY.[1]

Mr. Spencer's Psychology.—The following letter by Professor J. Mark Baldwin, President of the American Psychological Association, was read before the Philosophical Club of Bryn Mawr College, on the occasion of the celebration of the completion of Mr. Spencer's "Synthetic Philosophy."

Princeton, March 9.

To the Club:

In speaking briefly of Mr. Spencer's psychology, perhaps I can do no better than throw the impressions which I have into the form of informal pros and cons. I should premise what I have to say, however, with the remark that one of my reasons for not accepting your kind

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[20] Proc. Amer. Acad. Arts and Sci., XXXII, No. 9.

[21] Entomologist, XXX, 93, 94.

[1] Edited by H. C. Warren, Princeton University, Princeton, N. J.